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**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/217,740	12/21/98	CAD	M 10961260-1

IP ADMINISTRATION
LEGAL DEPARTMENT 20BN
HEWLETT PACKARD COMPANY
P O BOX 10301
PALO ALTO CA 94303-0890

MM42/0223

EXAMINER

OWENS, D

ART UNIT	PAPER NUMBER
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2811

DATE MAILED:

02/23/00

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Y

Office Action Summary

Application No.

09/217,740

Applicant(s)

CAO ET AL.

Examiner

Douglas W Owens

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 17) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 4 recites the limitation "...claim 1, wherein the protective outer wall..." in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakami, US patent No. 4,551,743.

Regarding claims 1 and 5, Murakami teaches a semiconductor isolation structure comprising:

a substrate, wherein said substrate has a surface;

a first and second device formed within said substrate;

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an isolation region formed in the substrate between the first and second devices, said isolation region comprising:

a deep region which extends into the substrate and has a first cross-sectional area, said deep region comprising an oxide; and

a shallow region which extends to the surface of the substrate and has a second cross-sectional area, said shallow region comprising a protective wall, wherein the first cross-sectional area is greater than the second cross-sectional area.

Regarding claim 3, Murakami teaches a semiconductor isolation structure, wherein the shallow region comprises a protective outer wall adjacent to the substrate.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami as applied above with respect to claim 1.

Regarding claim 2, Murakami does not teach a semiconductor isolation structure, wherein the isolation region comprises oxide. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an oxide for the isolation region since oxide is a known material that is well suited for the intended purpose.

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8. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami as applied to claims 1-3 above, and further in view of Ho et al., US patent No. 5,747,866.

Murakami does not teach a semiconductor isolation structure, wherein the protective outer wall comprises a layer of nitride, or a nitride wall and oxide wall. Ho teaches a semiconductor isolation structure, wherein the protective outer wall comprises a layer of oxide and a layer of nitride. It would have been obvious to one of ordinary skill to incorporate the teaching of Ho et al into the device taught by Murakami, since the structure will reduce stress.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bashir et al., US patent No., 5,914,523. Kano, US patent No., 5,221,857.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DWO
February 17, 2000

STEVEN H. LOKE
PRIMARY EXAMINER
GROUP 2500

Steven Loke